680/880 Corridor Study Comments Log

1	Dan Collen	1/25/2005	Text edits
2	Dan Collen	1/25/2005	Appendix D
3	Erik Alm	1/26/2005	Reitterating comments at meeting
4	Erik Alm	2/9/2005	Caltrans comments
5	Martin Boyle	1/27/2005	Implementation
6	Michele Bellows	1/31/2005	Various comments
7	Kacey Kimoto	2/10/2005	Executive summary - fax

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BEYOND ENGINEERING

MEMORANDUM

TO: **DATE:** **3/9/05**

FROM: **Olga Rodriguez** **PROJ. #:** **SJ0737**

SUBJECT: **Response to Comments from Caltrans District 4 to January 2005 Revision of I-680/I-880 Cross Connector Conceptual Report**

Comment (i) - In Section III (Background): *Without considering the operational conditions on the ramps and mainline on I-680 and I-880, how does providing additional capacity on the cross connector routes meet the demand of traffic going from I-680 to I-880 and back? There is no way to tell if a cross connector improvement (additional capacity) is a viable alternative unless you can determine if a downstream location (freeway on-ramp or mainline section) can handle this demand. If it can't then all the improvement would be providing is additional storage for these queued vehicles.*

Response (i) – Our analysis methodology considered the entire Study Area, including the downstream reaches questioned. The overall travel benefits listed include reduced travel times and increased throughput through this entire Study Area. The limited capacities of ramps and mainlines were inherent in this analysis and the benefits are still realized and significant. One of the main benefits achieved is to better distribute local traffic on the local roads. As noted throughout the Study, local traffic places significant demand on these facilities. By better dealing with this local traffic demand, the regional trips also benefit. Given this analysis approach and results, we disagree with your statement regarding additional storage and believe this Study accurately reflects the fact that not every trip originates in Pleasanton and ends in Mountain View.

Comment (ii) - In Section IV (Need and Purpose): "Outside the boundaries of the Study Area, the freeways "feeding" it (I-680, I-880) currently operate at or near capacity during the peak hour spreads in both the a.m. and p.m. hours. Current projects on these facilities may meet the current demand, but will not provide additional capacity." *Explain how projects can meet the current demand without providing additional capacity. Also, explain what affect these projects will have on these corridors (I-680 and I-880) within the study limits. Indicate locations of bottlenecks, queuing and delay caused by these bottlenecks, also the affect it will have on the proposed cross connector alternatives.* Thus the growth of traffic is expected to be more from local use than additional 'through trips,' unless the freeway capacity is increased outside the Study Area.

Response (ii) – It is our understanding that the recent/current projects (Route 237/I-880; I-880/Mission Blvd.; I-880/Dixon Landing Road; I-680 HOV Lanes, etc.) were developed to meet

the current demand, and they do increase capacity on these two facilities. Figures in our Report showing average speeds reflect anticipated bottlenecks when the projects listed are complete, and in 2025.

Comment (iii) - In Section IV (Need and Purpose): "Currently, the Study Area freeways (I-680 and I-880) operate below their theoretical capacity in the peak periods due to the relatively closely spaced interchanges and the high volume of merging and weaving associated therewith." *Freeways would operate below their theoretical capacity due to queuing upstream of freeway bottlenecks. Bottlenecks form when demand exceeds capacity. Flow rates in a bottleneck section would equal the capacity of the freeway and flow rates in the sections in queue would be below capacity of the freeway. Indicate the locations of these bottlenecks, queuing and delay caused by these bottlenecks, also the affect it will have on the proposed cross connector alternatives.*

Response (iii) – The scope of this Study is the east-west flow of traffic as noted. As per the above response, numerous studies on I-880 and I-680 have been performed to evaluate current and future bottlenecks on I-880 and I-680. The purpose of the statement commented upon is to set context for this Cross Connector Study, not to revisit or validate current/recent work on I-680 and I-880. The statement that peak period volumes are less than theoretical capacity is a statement of fact based on long-held theories of land capacity.

Comment (iv) - In Section V (Corridor Improvement Alternatives): Alternative C2 – Grade Separate Warm Springs Blvd. / Mission Blvd. "In addition, a modification of the Mission Blvd./I-680 interchange is combined with this project. This modification would eliminate the northeast and southwest loop ramps. These movements would be accommodated instead through the widening and realignment of the northwest and southeast diagonal ramps. This modification improves operations on Mission Blvd. east of Mohave Drive." *In your response to comments dated September 2, 2004, it is stated that Alternative C2 is no longer being recommended for further study. However, this report states that the grade separation option that was considered for further review and development under this alternative was to grade separate Mission Blvd. and Warm Springs. If this alternative is still being considered then you haven't responded to my original comment, which was the following. With the grade separation improvement eliminating this bottleneck, this study needs to look at the affects of releasing this traffic downstream to I-880 and I-680. What affect will this additional traffic have on these freeways? Without considering the affect this will cause how can you determine if this is a viable alternative or not?*

Response (iv) – Per Section XI, "Results and Recommendations," under Corridor C – Mission Blvd. (page 51), "…the grade separation of Warm Springs Blvd. and Mission Blvd. is not recommended for further development." This Report summarizes the process and the work of the Study. The earlier reference cited in this comment is a discussion regarding the alternatives development process, not the results.

Comment (v) - In Section VI (Traffic Analysis): Measures of Effectiveness: If I-880 and I-680 cannot accommodate additional vehicle trips than any capacity-increasing alternative on the cross connector will only shift the bottleneck to these freeway entrances and would not meet the objectives of this study. Key objectives stated in Background of this report: *Of the 4,100 vehicles entering the Study Area from the Sunol Grade in the morning peak hour, 80 percent cross from I-680 to I-880 north of Scott Creek Road. Additional capacity is required to meet this demand. Of the 4,500 vehicles entering the Study Area from I-680 to the south, 50 percent cross from I-680 to I-880 south of Scott Creek Road. Additional capacity is required to meet this demand.*

Response (v) – Please refer to Response (i) above. The capacity of systems is reflected in the analysis. Again, this Study focuses on the cross connectors, but the MOEs reflect movement on I-880 and I-680. Current studies on I-680 for the SMART lanes are assessing capacity of that facility.

Comment (vi) - In Section XI (Results and Recommendations): Table X, Table Note 2. *If the analysis does not take into account constraints within the study area (freeway mainline and ramps) then how can you analyze through trips for these proposed alternatives? The travel demand models stated as being used to analyzed the alternatives do not analyze for operational constrains within the study area and will not indicate how much traffic can actually flow through the study area due to these constraints. Therefore, this is not a viable MOE to determine whether one alternative is preferred to another alternative.*

Response (vi) – The objectives, constraints, methodology, MOEs and results of this Study have been coordinated with and approved by the TAC over many years. Recognizing the size of the Study Area, the complexity of the traffic in the Study Area, and the limitations of the tools with which to make decisions, it was agreed to be the TAC, at which Caltrans was always present, that the basis of comparison was not only valid, but very appropriate for this Study. Future project development efforts on recommended projects would likely include operational analysis to better refine the proposed improvements.

Responses to Casey:

(a) See (i) and (v) above. We did not specifically analyze I-680, I-880, but travel times, etc., include these facilities.

Response to Comments, dated December 22, 2003

1. When the study was initiated, the best model data available was for the year 2025. Caltrans has a primary partner throughout this process, and Caltrans staff agreed to the use of 2025 as the model year for comparison basis. As described in the Executive Summary, the purpose of this study is to first, identify the magnitude of the problem; second, develop appropriate solutions; and third, to initiate the project development process, at which time the 20 year post-construction criterion would be of greater relevance.

2. We will reword this bullet for clarification. In general, however, the study indicated that freeway sections with heavy on-ramp traffic do not seem to reach theoretical capacity. This appears to be a function of the HOV lane.

3. The terminology has been modified to introduce the concept of "regional trips," which would be trips that originate or end outside the study area. The intent is to use "through trips" to refer to trips which originate and end outside the study area.

4. This change has been incorporated into the text.

February 19, 2004

Mr. Amin Surani
3331 North First Street, Building B
San Jose, CA 95134

SUBJECT: I-680/I-880 CROSS CONNECTOR CONCEPTUAL STUDY REPORT (DRAFT) RESPONSE TO COMMENTS DATED DECEMBER 22, 2003

Dear Amin:

We have reviewed the comments on the Cross Connector Report Outline provided by Caltrans District 4, (dated December 22, 2003), and the comments from Caltrans on the Administrative Draft of the Conceptual Report (dated March 23, 2004). Where appropriate, the comments have been incorporated into the Study. Following is a summary of the comments and our response:

DECEMBER 2003 COMMENTS ON THE OUTLINE:

1. ***Comment:*** Executive Summary: Report states that the model year for analysis is 2025. Has FHWA or Caltrans Legal/Environmental branches have concerns for this forecasted year, which is less than the normal twenty years after construction analysis?

   Response: When the study was initiated, the best model data available was for the year 2025. Caltrans has been a primary partner throughout this process and Caltrans staff agreed to the use of 2025 as the model year for comparison basis. As described in the Executive Summary, the purpose of this Study is to first, identify the magnitude of the problem; second, develop appropriate solutions; and third, to initiate the project development process, at which time the 20-year post-construction criterion would be of greater relevance.

2. ***Comment:*** Need and Purpose, Bullet #5: This is not true in bottleneck sections where the freeways operate at capacity. Also, increasing on-ramp volumes would not cause the freeway to operate below their theoretical capacity. If the on-ramp caused a bottleneck then the bottleneck section would operate at capacity. If the on-ramp volumes didn't cause a bottleneck, this would not cause the freeway to operate below its theoretical capacity.

   Response: We will re-word this bullet for clarification. In general, however, the study indicated that freeway sections with heavy on-ramp traffic do not seem to reach theoretical capacity. *Note: See also Comment #2 from March 23rd, and responses thereto, below.*

3. ***Comment:*** Background and Need and Purpose: This document defined through trips (under Background #5) as "trips either originate or end outside the study area" and local trips (under Need and Purpose fourth bullet) as "trips either originate or finish (or both) within the Study Area." This is a conflict. The Report already defines trips that originate OR end outside the

Study Area as through trips, and then local trips could only be those BOTH originate AND finish within the Study Area.

Response: The terminology has been modified to introduce the concept of "regional trips" for trips that originate or end outside the Study Area. The intent is to use "through trips" to refer to trips which originate and end outside the Study Area.

4. ***Comment:*** Need and Purpose, Bullet #7: *But since these routes are near capacity...* Should state, *...but since these routes are at or near capacity...*

   Response: This change has been incorporated into the text.

MARCH 23, 2004 COMMENTS ON ADMINISTRATIVE DRAFT

As a general response to many of the questions posed by Caltrans in their review of the Concept Report, we offer the following:

The purpose of the project was to assess the 8+ mile long stretch of parallel freeway systems to assess how best to improve overall throughput through the roadway network, including freeways, in the "Study Area." The focus was agreed by the TAC to be on the cross connectors, or east-west facilities, and not to study I-680/I-880. The primary tool for analysis was chosen to be the regional model developed by the VTA for the BART project, modified slightly for this Study. This tool does not allow detailed analyses of intersections and local operations, but does reflect global travel patterns and capacities of networks. Therefore, while it was and is possible to determine global benefits for and changes to travel within the Study Area, it was not the intent or the ability of this Study to fully assess localized ramps.

It is intended that the next stage of project development for the recommended alternatives is to begin Project Study Reports or similar documents to further refine the alternatives. It is believed many of the questions raised will be more appropriately addressed in those studies.

1. ***Comment:*** Executive Summary, Page 2: The projected cost to develop the short-term projects, … or $235 million if the elevated HOV alternative is selected. The projected cost of the short-term projects with the elevated HOV alternative is $335 million according to the table under the Cost Estimate section of this Report.

   Response: Change made as noted.

2. ***Comment:*** Need and Purpose, Bullet # 5: The reason the freeways are operating below their theoretical capacity needs to be explained (indicate locations of bottlenecks and queuing) and what effect it will have on improvements for this cross connector study.

Response: The Need and Purpose Section is intended to set the existing conditions and a fundamental starting point for this Study. As such, the statement that "…the Study Area freeways in the peak periods operate below their theoretical capacity…" is simply a recognition that demand exceeds the facility's capacity, but actual volumes on the facility are not reflecting the volumes theory would predict. As this Study is not focused on I-680 and I-880, and those two facilities were recently studied and/or upgraded and/or have current planned improvements, this Study did not address that issue. As previously mentioned, this was a TAC-level decision reached by all involved parties.

3. ***Comment:*** Corridor Improvement Alternatives, Alt. A1, page 10: Need to analyze the effect this widening will have on I-880 and I-680. Will this widening shift the bottleneck to the on-ramps on I-880 during the morning commute period? Will the widening shift the bottleneck to the on-ramp on I-680 in the evening commute period?

   Response: As per response to Comment #2, the purpose of this Study is to assess the east-west traffic and identify which projects to pursue and in what priority. As any of these projects are developed, more detailed corridor analyses will be performed. However, the projects recommended show significant increases in travel speeds and/or Person Trips through the Study Area. In essence, these results did, on a global scale, assess I-680 and I880 as they were part of the model used in the analysis.

4. ***Comment:*** Corridor Improvement Alternatives, Alt. A2, page 10: If this intersection is a bottleneck will the widening of Auto Mall Parkway remove this bottleneck? If the widening does not remove this bottleneck then there will not be much benefit for cross-connector traffic if this intersection is not improved

   Response: The widening of Auto Mall Parkway is expected to improve operations at the intersection/interchange area by increasing the number of through lanes on Auto Mall Parkway. As stated previously, the modeling shows significant benefit to traffic in the Study Area (specifically the northern portion for this alternative) as a whole for this alternative.

5. ***Comment:*** Corridor Improvement Alternatives, Alt B2, page 11: The geometrics for option (2) are not included in this report.

   Response: Full colored exhibits were prepared only for those alternatives that remained after multiple screening efforts. Geometrics were developed for Option (2) and will be included in a CD that will be part of the Report, but no color plots are proposed for those alternatives considered and rejected earlier on in the Study.

6. ***Comment:*** Corridor Improvement Alternatives, Alt C2, page 12: With the grade separation improvement eliminating this bottleneck, this study needs to look at the effects of releasing

this traffic downstream to I-880 and I-680. What effect will this additional traffic have on these freeways?

Response: Alternative C2 is no longer being recommended for further study, based on microsimulation analyses completed subsequent to the Administrative Draft Report. The construction costs and impacts would be very significant, and the benefits were relatively small, due in part to some of the concerns intimated in this question and reflected in the microsimulation.

7. ***Comment:*** Corridor Improvement Alternatives, Alt D3, page 14: Was the intersection of the proposed Kato Rd. extension and the Future Fremont Blvd. analyzed to determine what affect this addition traffic would have on this I/S?

Response: As discussed above, detailed intersection analyses is not part of this global travel demand study. As this is a newly proposed intersection, not currently existing or previously proposed, analyses would be performed in the next project development stage to assign lane configurations and more accurately assess intersection operations.

8. ***Comment:*** Corridor Improvement Alternatives, Alt E1, page 14: What effect will this widening have on I-880, I-680 and SR-237?

Response: Please refer to general responses above. As this is a project that closes a gap in the system, the primary benefit appears localized with "minor" overall increases or changes in volumes on the facilities mentioned.

9. ***Comment:*** Traffic Analysis, Existing Conditions, page 17: If I-680 and I-880 operate below their theoretical capacity, primarily due to queuing and congestion on these freeways and this study is not looking at improving conditions on I-680 and I-880, then how will these alternatives improve through traffic? Making improvements on cross-connector routes might only shift bottlenecks to the freeway interchanges.

Response: As stated in some of the material, the "local" traffic will be of such a magnitude in 2025 as to utilize all east-west capacity in the Study Area, leaving no capacity for through traffic. Also, not all "through," or "regional," traffic completes or originates their trips on one of the three freeways (Route 237, I-680, I-880). Therefore, by adding capacity to east-west facilities (Auto Mall Parkway and Calaveras Blvd.) and creating new connections not utilizing I-680 or I-880 (Kato Road extension), the local traffic and through traffic both have more options. Finally, as part of some of these improvements (Auto Mall Parkway and Mission Blvd.), it is proposed that the improvements include interchange modifications.

10. ***Comment:*** Alternatives Analysis, 2. The Most Likely Strategies, page 21, bullet 4: If the growth in cross-connector HOV traffic is greater than the available capacity in the HOV lanes on I-680 and I-880 then this could cause the HOV lanes to breakdown. Was the

available capacity in the HOV lanes on I-680 and I-880 analyzed to determine how much growth could occur?

Response: Similar to previous responses, the travel demand model is capacity-constrained and recognizes the limits of the system. Even with this constrained capacity, the benefits are significant. Ongoing "HOT" or "SMART" lane studies on I-680 are considering the anticipated demand for the HOV lanes.

11. ***Comment:*** Alternative Analysis, 3. Critical MOE's,a. Descriptive, page 21, bullet 1: Increase in vehicle trips in a corridor might only indicate that capacity was added to that corridor it does not indicate if there is enough capacity downstream of this corridor that can handle this increase in vehicle trips. A better MOE would be increase in trips through the study area.

Response: While the reporting mechanism in trips in a corridor, the model is a regional model. The Study, therefore, assessed total travel time through the Study Area to help measure total benefit to the user. Total trips through the Study Area, in a ratio with travel time, were a key measure used to differentiate benefits of projects.

12. ***Comment:*** Layout Alt. C2 (b1): Are the left-turns needed for EB and WB Mission Blvd. to the NB and SB I-680 diagonal on-ramps. This traffic would be able to use the NB and SB loop on-ramps.

Response: The study of the Mission Blvd/I-680 interchange was not complete at the time of the Administrative Draft Report. This study has now been completed and the proposed interchange improvements at Mission Blvd./I-680 have been updated to reflect a par-clo arrangement. Please see the updated plans in the Draft Report.

13. ***Comment:*** Summary MOE's-Indivdual Alt. Analysis Table: Change in Thru Trips, is this a change for this corridor or through the Study Area? If it is only a change through the corridor this does not show what effect these additional trips will have on any downstream constraints.

Response: The change in "through trips" is for the entire Study Area. We will modify the Report to clarify this data. The numbers shown are also the total for both peak periods (a.m. peak hour total plus p.m. peak hour total). Note that to develop these results, a somewhat arbitrary "box" was drawn around the Study Area. Therefore, the Calaveras Blvd. improvements, with its direct access to Route 237 and very heavy percentage of "local" trips, show relatively poor results. In essence, this improvement does not appear to draw more regional trips, likely due to constraints on either end of the improvement. However, travel locally within the Study Area will benefit greatly from these improvements.

14. ***Comment:*** Summary MOE's-Indivdual Alt. Analysis Table: What is the change in person trips based on? In Alt. E1 you show a reduction in Thru Trips and HOV Trips but an increase in person trips, how is this possible? Also, comparing Alt. B1 and D3, B1 has a greater increase in Thru Trips and HOV Trips than D3, however, D3 shows a greater increase in Person Trips?

Response: As mentioned above, the Calaveras Blvd. Corridor has a significant amount of "local" trips, which result in seemingly incongruous Study Area results. The change in through trips appears to be a result of more direct usage of the facility from those trips starting or originating "within the box."

Relative to Alts B1 and D3, it is important to remember that the MOEs shown attempt to analyze different types of changes in travel patterns, in an effort to broadly compare the alternatives. Through trips, therefore, generally measure regional trip increases. HOV trips, which count all HOV trips in the Study Area (not just "thru HOV" trips, are a different measure. Person Trips are a closer corollary measure to HOV trips but account for all trips in the Study Area.

15. ***Comment:*** Summary MOE's-Indivdual Alt. Analysis Table: Alt. E1 does not show any benefit compared to the other alternatives. Why is this included in your recommended alternatives?

Response: Please see response to comment #13 above. In addition, this alternative helps offset increases of traffic on McCarthy Blvd. as a result of the Kato Road project and relieves I-680, Montague Expressway and Jacklin Road. Finally, this facility currently recognizes significant delays throughout the day and on weekends, not just during peak-hour traffic.

16. ***Comment:*** Summary MOE's-Individual Alt. Analysis Table: Why is the change in Thru Trips twice as much for Alt. B1 as for Alt. B2 when the only difference is an at-grade HOV lane compared to an HOV lane on a separate structure? The change in HOV trips increases for the separate HOV lane compared to the at-grade HOV lane which is feasible, but why would the overall Thru Trips double for the at-grade HOV lane alt. as the separate HOV structure would be removing more HOV's from the mixed-flow traffic?

Response: As mentioned above, through trips are a function of the "box" definition. The at-grade system provides access to vehicles entering and exiting the "box" on surface streets such as Grimmer Blvd. on the east and Fremont Blvd. on the west, whereas the elevated HOV system is only accessible via I-680, both "within" the box. We discussed doing some sensitivity analyses on the "box" definition, but agreed that by using all the measures, the importance of that issue was diminished.

17. ***Comment:*** Summary MOE's-Combination of Alt. Analysis Table: Package No. 1 compared to Package No. 2, With Package No. 2 having more than twice as many Thru Trips and 100 more HOV Trips it seems that the Persons Trips should be greater than only 200 additional trips compared to Package No. 1.

    Response: Please refer to other discussions regarding the different MOEs.

18. ***Comment:*** Appendix 5, Alternative Analysis, Problem Statements, bullet 1: If by 2025, trips that have an origin or destination in the project area (local trips) will consume the entire capacity of the current street network, and the additional 9,000 through trips will require additional capacity through the study area, where will this capacity come from? Increasing capacity on the street network will only provide storage, as the freeways won't have the capacity to handle these additional trips. Bullet 3 states that the freeways are already at capacity. The only capacity available (possibly) would be in the HOV lanes. This study should indicate how much capacity would be available in the HOV lanes or whether these lanes would also breakdown due to the HOV demand in 2025.

    Response: We will work to clarify the assumption and the time frames. The projected growth should not be compared to existing conditions, nor do existing conditions take into account planned improvements. The remaining portions of this question have been previously addressed.

19. ***Comment:*** Cross-Connector Modeling Project AM Link Volumes Difference between A1A and Future Base: Westbound Auto Mall Parkway has increased volumes of approximately 800 vehicles in the location of the widening, however, downstream of this location the volumes are not increasing which would indicate that this is a bottleneck location.

    Response: What these numbers reflect, as interpreted by the TAC, is the vehicles now upstream and downstream of Auto Mall Parkway avoid this reach and go around Auto Mall Parkway (from north to south), but that widening Auto Mall Parkway by itself will not dramatically affect the two freeways. The majority of change is to the local street system.

20. ***Comment:*** Cross-Connector Modeling Project AM Link Volumes Difference between alternatives and Future Bass: All of these plots show what the effect of one alternative will have on the study area. However, you are proposing five short-term projects and three long-term projects. Your plots should indicate the effect of these projects combined on traffic throughout the study area. This is the case throughout these alternative plots.

    Response: Package I compared to Base Plots were included in E. We will add Difference Plots for Package II. The three longer-term projects are recommended for further study only, at this time, and were not modeled in combination with the other two packages.

21. ***Comment:*** This study needs to consider improving traffic flow not only between I-680 and I-880 but also through the study area (between the Sunol grade and the golden triangle). To accomplish the effect of the alternatives on I-680, I-880 and SR-237 need to be analyzed.

    Response: We believe this Study has accomplished this per our responses.

We trust these responses clarify the issues raised. We appreciate the comments and are available for additional discussion if you desire.

Sincerely,

NOLTE ASSOCIATES, INC.

Chris Metzger, P.E.

cc: Zachary Chop, Caltrans

September 2, 2004

Mr. Amin Surani
3331 North First Street, Building B
San Jose, CA 95134

SUBJECT: I-680/I-880 CROSS CONNECTOR CONCEPTUAL STUDY REPORT (DRAFT) RESPONSE TO COMMENTS DATED DECEMBER 22, 2003 AND MARCH 23, 2004

Dear Amin:

We have reviewed the comments on the Cross Connector Report Outline provided by Caltrans District 4, (dated December 22, 2003), and the comments from Caltrans on the Administrative Draft of the Conceptual Report (dated March 23, 2004). Where appropriate, the comments have been incorporated into the Study. Following is a summary of the comments and our response:

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Response: As per response to Comment #2, the purpose of this Study is to assess the east-west traffic and identify which projects to pursue and in what priority. As any of these projects are developed, more detailed corridor analyses will be performed. However, the projects recommended show significant increases in travel speeds and/or Person Trips through the Study Area. In essence, these results did, on a global scale, assess I-680 and I880 as they were part of the model used in the analysis.

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Response: The widening of Auto Mall Parkway is expected to improve operations at the intersection/interchange area by increasing the number of through lanes on Auto Mall Parkway. As stated previously, the modeling shows significant benefit to traffic in the Study Area (specifically the northern portion for this alternative) as a whole for this alternative.

5. ***Comment:*** Corridor Improvement Alternatives, Alt B2, page 11: The geometrics for option (2) are not included in this report.

Response: Full colored exhibits were prepared only for those alternatives that remained after multiple screening efforts. Geometrics were developed for Option (2) and will be included in a CD that will be part of the Report, but no color plots are proposed for those alternatives considered and rejected earlier on in the Study.

6. ***Comment:*** Corridor Improvement Alternatives, Alt C2, page 12: With the grade separation improvement eliminating this bottleneck, this study needs to look at the effects of releasing this traffic downstream to I-880 and I-680. What effect will this additional traffic have on these freeways?

   Response: Alternative C2 is no longer being recommended for further study, based on microsimulation analyses completed subsequent to the Administrative Draft Report. The construction costs and impacts would be very significant, and the benefits were relatively small, due in part to some of the concerns intimated in this question and reflected in the microsimulation.

7. ***Comment:*** Corridor Improvement Alternatives, Alt D3, page 14: Was the intersection of the proposed Kato Rd. extension and the Future Fremont Blvd. analyzed to determine what affect this addition traffic would have on this I/S?

   Response: As discussed above, detailed intersection analyses is not part of this global travel demand study. As this is a newly proposed intersection, not currently existing or previously proposed, analyses would be performed in the next project development stage to assign lane configurations and more accurately assess intersection operations.

8. ***Comment:*** Corridor Improvement Alternatives, Alt E1, page 14: What effect will this widening have on I-880, I-680 and SR-237?

   Response: Please refer to general responses above. As this is a project that closes a gap in the system, the primary benefit appears localized with "minor" overall increases or changes in volumes on the facilities mentioned.

9. ***Comment:*** Traffic Analysis, Existing Conditions, page 17: If I-680 and I-880 operate below their theoretical capacity, primarily due to queuing and congestion on these freeways and this study is not looking at improving conditions on I-680 and I-880, then how will these alternatives improve through traffic? Making improvements on cross-connector routes might only shift bottlenecks to the freeway interchanges.

   Response: As stated in some of the material, the "local" traffic will be of such a magnitude in 2025 as to utilize all east-west capacity in the Study Area, leaving no capacity for through traffic. Also, not all "through," or "regional," traffic completes or originates their trips on one of the three freeways (Route 237, I-680, I-880). Therefore, by adding capacity to east-west facilities (Auto Mall Parkway and Calaveras Blvd.) and creating new connections not utilizing I-680 or I-880 (Kato Road extension), the local traffic and through traffic both have more options. Finally, as part of some of these improvements (Auto Mall Parkway and Mission Blvd.), it is proposed that the improvements include interchange modifications.

10. ***Comment:*** Alternatives Analysis, 2. The Most Likely Strategies, page 21, bullet 4: If the growth in cross-connector HOV traffic is greater than the available capacity in the HOV lanes on I-680 and I-880 then this could cause the HOV lanes to breakdown. Was the available capacity in the HOV lanes on I-680 and I-880 analyzed to determine how much growth could occur?

Response: Similar to previous responses, the travel demand model is capacity-constrained and recognizes the limits of the system. Even with this constrained capacity, the benefits are significant. Ongoing "HOT" or "SMART" lane studies on I-680 are considering the anticipated demand for the HOV lanes.

11. ***Comment:*** Alternative Analysis, 3. Critical MOE's,a. Descriptive, page 21, bullet 1: Increase in vehicle trips in a corridor might only indicate that capacity was added to that corridor it does not indicate if there is enough capacity downstream of this corridor that can handle this increase in vehicle trips. A better MOE would be increase in trips through the study area.

Response: While the reporting mechanism in trips in a corridor, the model is a regional model. The Study, therefore, assessed total travel time through the Study Area to help measure total benefit to the user. Total trips through the Study Area, in a ratio with travel time, were a key measure used to differentiate benefits of projects.

12. ***Comment:*** Layout Alt. C2 (b1): Are the left-turns needed for EB and WB Mission Blvd. to the NB and SB I-680 diagonal on-ramps. This traffic would be able to use the NB and SB loop on-ramps.

Response: The study of the Mission Blvd/I-680 interchange was not complete at the time of the Administrative Draft Report. This study has now been completed and the proposed interchange improvements at Mission Blvd./I-680 have been updated to reflect a par-clo arrangement. Please see the updated plans in the Draft Report.

13. ***Comment:*** Summary MOE's-Indivdual Alt. Analysis Table: Change in Thru Trips, is this a change for this corridor or through the Study Area? If it is only a change through the corridor this does not show what effect these additional trips will have on any downstream constraints.

Response: The change in "through trips" is for the entire Study Area. We will modify the Report to clarify this data. The numbers shown are also the total for both peak periods (a.m. peak hour total plus p.m. peak hour total). Note that to develop these results, a somewhat arbitrary "box" was drawn around the Study Area. Therefore, the Calaveras Blvd. improvements, with its direct access to Route 237 and very heavy percentage of "local" trips, show relatively poor results. In essence, this improvement does not appear to draw

more regional trips, likely due to constraints on either end of the improvement. However, travel locally within the Study Area will benefit greatly from these improvements.

14. ***Comment:*** Summary MOE's-Indivdual Alt. Analysis Table: What is the change in person trips based on? In Alt. E1 you show a reduction in Thru Trips and HOV Trips but an increase in person trips, how is this possible? Also, comparing Alt. B1 and D3, B1 has a greater increase in Thru Trips and HOV Trips than D3, however, D3 shows a greater increase in Person Trips?

Response: As mentioned above, the Calaveras Blvd. Corridor has a significant amount of "local" trips, which result in seemingly incongruous Study Area results. The change in through trips appears to be a result of more direct usage of the facility from those trips starting or originating "within the box."

Relative to Alts B1 and D3, it is important to remember that the MOEs shown attempt to analyze different types of changes in travel patterns, in an effort to broadly compare the alternatives. Through trips, therefore, generally measure regional trip increases. HOV trips, which count all HOV trips in the Study Area (not just "thru HOV" trips, are a different measure. Person Trips are a closer corollary measure to HOV trips but account for all trips in the Study Area.

15. ***Comment:*** Summary MOE's-Indivdual Alt. Analysis Table: Alt. E1 does not show any benefit compared to the other alternatives. Why is this included in your recommended alternatives?

Response: Please see response to comment #13 above. In addition, this alternative helps offset increases of traffic on McCarthy Blvd. as a result of the Kato Road project and relieves I-680, Montague Expressway and Jacklin Road. Finally, this facility currently recognizes significant delays throughout the day and on weekends, not just during peak-hour traffic.

16. ***Comment:*** Summary MOE's-Individual Alt. Analysis Table: Why is the change in Thru Trips twice as much for Alt. B1 as for Alt. B2 when the only difference is an at-grade HOV lane compared to an HOV lane on a separate structure? The change in HOV trips increases for the separate HOV lane compared to the at-grade HOV lane which is feasible, but why would the overall Thru Trips double for the at-grade HOV lane alt. as the separate HOV structure would be removing more HOV's from the mixed-flow traffic?

Response: As mentioned above, through trips are a function of the "box" definition. The at-grade system provides access to vehicles entering and exiting the "box" on surface streets such as Grimmer Blvd. on the east and Fremont Blvd. on the west, whereas the elevated HOV system is only accessible via I-680, both "within" the box. We discussed doing some

sensitivity analyses on the "box" definition, but agreed that by using all the measures, the importance of that issue was diminished.

17. ***Comment:*** Summary MOE's-Combination of Alt. Analysis Table: Package No. 1 compared to Package No. 2, With Package No. 2 having more than twice as many Thru Trips and 100 more HOV Trips it seems that the Persons Trips should be greater than only 200 additional trips compared to Package No. 1.

Response: Please refer to other discussions regarding the different MOEs.

18. ***Comment:*** Appendix 5, Alternative Analysis, Problem Statements, bullet 1: If by 2025, trips that have an origin or destination in the project area (local trips) will consume the entire capacity of the current street network, and the additional 9,000 through trips will require additional capacity through the study area, where will this capacity come from? Increasing capacity on the street network will only provide storage, as the freeways won't have the capacity to handle these additional trips. Bullet 3 states that the freeways are already at capacity. The only capacity available (possibly) would be in the HOV lanes. This study should indicate how much capacity would be available in the HOV lanes or whether these lanes would also breakdown due to the HOV demand in 2025.

Response: We will work to clarify the assumption and the time frames. The projected growth should not be compared to existing conditions, nor do existing conditions take into account planned improvements. The remaining portions of this question have been previously addressed.

19. ***Comment:*** Cross-Connector Modeling Project AM Link Volumes Difference between A1A and Future Base: Westbound Auto Mall Parkway has increased volumes of approximately 800 vehicles in the location of the widening, however, downstream of this location the volumes are not increasing which would indicate that this is a bottleneck location.

Response: What these numbers reflect, as interpreted by the TAC, is the vehicles now upstream and downstream of Auto Mall Parkway avoid this reach and go around Auto Mall Parkway (from north to south), but that widening Auto Mall Parkway by itself will not dramatically affect the two freeways. The majority of change is to the local street system.

20. ***Comment:*** Cross-Connector Modeling Project AM Link Volumes Difference between alternatives and Future Bass: All of these plots show what the effect of one alternative will have on the study area. However, you are proposing five short-term projects and three long-term projects. Your plots should indicate the effect of these projects combined on traffic throughout the study area. This is the case throughout these alternative plots.

Response: Package I compared to Base Plots were included in E. We will add Difference Plots for Package II. The three longer-term projects are recommended for further study only, at this time, and were not modeled in combination with the other two packages.

21. ***Comment:*** This study needs to consider improving traffic flow not only between I-680 and I-880 but also through the study area (between the Sunol grade and the golden triangle). To accomplish the effect of the alternatives on I-680, I-880 and SR-237 need to be analyzed.

Response: We believe this Study has accomplished this per our responses.

We trust these responses clarify the issues raised. We appreciate the comments and are available for additional discussion if you desire.

Sincerely,

NOLTE ASSOCIATES, INC.

Chris Metzger, P.E.

cc: Zachary Chop, Caltrans